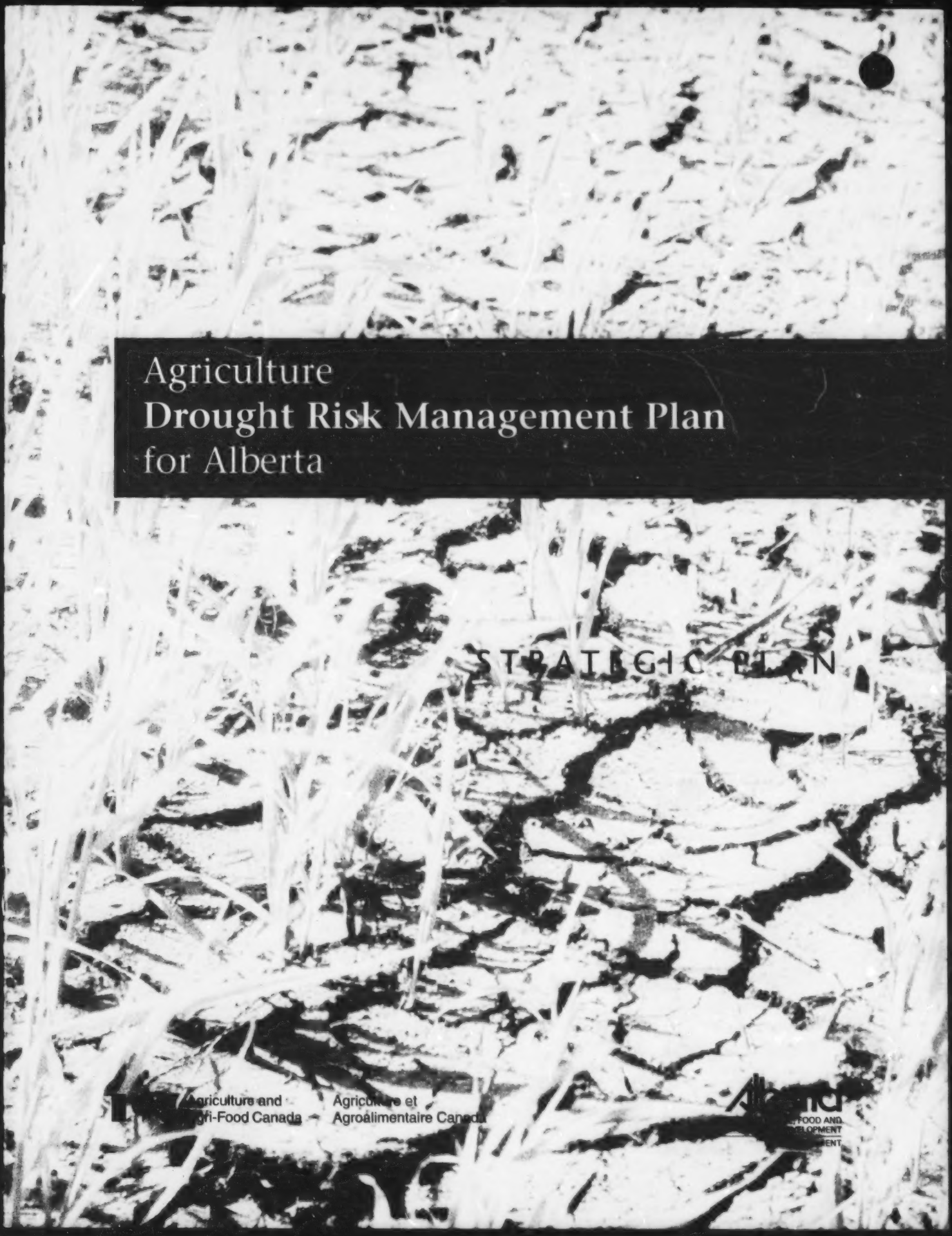
Agriculture
Drought Risk Management Plan
for Alberta
STRATEGIC PLAN
Agriculture and
Agri-Food Canada
Agriculture et
Agroalimentaire Canada

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Executive Summary

Recurring droughts are a part of Alberta's climate. These droughts can cause serious impacts on the province's agriculture industry. Ad hoc responses to an existing drought crisis may lead to untimely and costly short-term solutions. In contrast, a risk management approach to drought allows an immediate, effective response during a drought crisis, and also reduces drought impacts over the long term through planning and preparedness. Therefore Alberta's agriculture industry has voiced a need for a drought risk management plan.

The Agriculture Drought Risk Management Plan (ADRMP) addresses this need. The plan provides a framework for a coordinated, pro-active approach to reduce the effects of drought on Alberta farmers and ranchers.

Shared Responsibility

The activities of the ADRMP will be coordinated by the multi-agency Alberta Drought Management Committee (ADMC). The plan's three main partner agencies — Alberta Agriculture, Food and Rural Development, Alberta Environment, and Prairie Farm Rehabilitation Administration — will provide scientific and technical input, develop educational materials and recommend delivery of programs.

Representatives of municipal councils from the drought-affected areas will be invited to join the ADMC during the dry conditions. They will provide local input and identify drought-response actions that meet local needs. Agriculture industry organizations will be asked for input on ADRMP activities and to work with the partners to help producers prepare for and cope with drought.

Timely, Effective Actions

The actions under the plan, summarized below, will depend on the level of drought — from Normal Conditions, to Drought Alert, to Drought. The level of drought will be determined objectively, using science-based drought indicators.

1. Normal Conditions Actions

- Conduct ongoing activities such as: developing drought preparedness information for producers; assessing water demands and water resources; and monitoring drought-related characteristics.

2. Drought Alert Actions

- Advise the Ministers of the partner agencies of the Drought Alert status.
- Prepare communications for producers and others on the drought situation and drought-related activities.
- Identify possible actions suited to the needs of the affected areas.

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3. Drought Actions

- Recommend that the Alberta Minister of Agriculture declare a Drought in the affected areas.
- Recommend to the appropriate Ministers possible options to respond to the Drought, such as:
    - feed/livestock freight assistance program
    - emergency water hauling program
    - reduced rates for dugout water pumping
    - early assessment for tax deferral
    - drought disaster loan program
    - grasshopper control program
    - direct acreage payments
- Implement the approved programs.

Sound Strategies

Three main strategies will be used in implementing the plan:

- Drought Preparedness — taking action before a drought to increase the level of readiness by all stakeholders.
- Drought Reporting — conducting monitoring, evaluating and reporting on drought-related conditions.
- Drought Response — taking action during and immediately following a drought to reduce its impacts.

Positive Results

Implementation of the ADRMP will help agricultural producers to be more prepared and less vulnerable to drought. It will also ensure an effective response by government agencies to reduce impacts during a drought crisis.

Introduction

Alberta's agriculture industry has suffered serious impacts from the recurring droughts that characterize the province's climate. Ad hoc responses to a drought crisis often result in untimely, inconsistent and costly actions, and usually provide only short-term solutions. In contrast, a risk management approach to drought not only provides a well-coordinated, immediate response during a drought crisis, it also reduces drought impacts over the long term through planning and preparedness. As a result, Alberta's agriculture industry has voiced a need for a risk management plan to reduce the effects of drought on farmers and ranchers in the short and long term.

The Agriculture Drought Risk Management Plan (ADRMP) has been developed to address this need. The plan provides a framework for a coordinated, pro-active approach to mitigate the effects of drought in the agricultural areas of Alberta.

Implementation of the plan will:

- provide up-to-date, accurate information to help farmers and ranchers be more prepared and less vulnerable to drought;
- ensure pro-active, coordinated and effective actions; and
- ensure a consistent, fair response to drought.

Shared Responsibilities

Alberta Drought Management Committee

The Alberta Drought Management Committee (ADMC) will be the coordinating body of the ADRMP. The committee will have a minimum of one representative from Alberta Environment, one from Prairie Farm Rehabilitation Administration, two from the Agriculture Financial Services Corporation, and three from Alberta Agriculture, Food and Rural Development.

Partner Agencies

The plan's three main partner agencies — Alberta Agriculture, Food and Rural Development, Alberta Environment, and Prairie Farm Rehabilitation Administration — will collect, analyze and distribute drought-related data, develop and deliver drought-preparedness information to agricultural producers, and recommend delivery of drought-related programs.

Municipal Councils

A Council representative from each affected municipality will be invited to join the ADMC while dry conditions prevail in the municipality. The representative will provide input on the local situation and will work with the other ADMC members to identify drought response options suited to the municipality's specific needs.

Industry Organizations

Agricultural industry organizations will be asked to provide input on various ADRMP activities and to work with the partner agencies in helping producers to prepare for and cope with drought.

Drought Action Plan

The actions taken under the plan will depend on the level of drought — from Normal Conditions, to Drought Alert, to Drought. The level of drought will be determined objectively, using science-based drought indicators.

Actions during Normal Conditions

- Conduct ongoing activities such as: developing and delivering educational materials for farmers and ranchers; completing municipal-level preliminary assessments of critical water demands and estimated available water resources; and monitoring drought-related weather conditions.

Actions during Drought Alert

- Advise the Ministers of the partner agencies of the Drought Alert status and its impacts.
- Inform partner agencies and affected municipalities of the Drought Alert status.
- Identify appropriate options for actions in the affected areas.
- Prepare communications for producers and others on the drought situation and drought-related activities.

Actions during Drought

- Recommend that the Alberta Minister of Agriculture Food and Rural Development declare Drought status for the affected areas.
- Provide news releases and articles to the news media to inform the agricultural community of the drought situation.
- Recommend to the appropriate Ministers the identified options for responding to the drought such as: a feed/livestock freight assistance program, an emergency water hauling program, reduced rates for dugout water pumping or a drought disaster loan program.
- Coordinate the approved programs.

Strategies

Three basic strategies will be used in implementing the plan — Drought Preparedness, Drought Reporting and Drought Response:

Drought Preparedness

The partner agencies will conduct a variety of activities to improve drought preparedness including:

- identifying approaches to drought preparedness and risk management;
- packaging and delivering information on drought preparedness for producers;
- completing municipal level assessments of water demands and resources; and
- developing and maintaining inventories of water resources.

Drought Reporting

The partners will collect, analyze and distribute up-to-date drought information to help ensure appropriate responses to the current situation. To improve Alberta's drought monitoring capabilities, 34 new real-time weather monitoring stations are being added in agricultural areas. The collected data will be analyzed to evaluate damage, forecast impacts, and assess options for drought response.

The ADRMP reports will include maps of soil moisture conditions, drought severity and projected scenarios for drought conditions several weeks ahead. The reports will use a combination of scientific drought indicators to accurately determine drought severity and duration (see Appendix). As the conditions become drier, the reports will become more frequent and more detailed.

Drought Response

The ADRMP provides a Response Toolbox of possible actions to implement in the face of worsening drought. The options range from mitigation during Drought Alert to financial stabilization during and following Drought. ADMC will work with Council representatives from drought-affected municipalities to develop recommendation for the best options for the local situation.

The Response Toolbox includes the following options:

- Provide AAFRD Water Pumping Program.
- Implement water rationing.
- Provide information to affected farmers on financial and personal counseling.
- Assess available feed supplies.
- Implement a water hauling program.
- Implement a feed/livestock freight assistance program.
- Offer the Dugout Water Pumping Program at reduced rates.
- Recommend tax deferral.

- Implement drought disaster loan program.
- Implement direct acreage payments to farmers.
- Provide support to municipalities for a grasshopper control program.

After the drought, ADMC will coordinate an assessment of the ADRMP actions to determine what if any changes to the ADRMP are needed.

Conclusion

Implementation of the ADRMP will help agricultural producers to be more prepared and less vulnerable to drought. It will also result in a timely and effective response by government agencies to reduce impacts during a drought crisis.

Appendix: Proposed Drought Indices

How dry does it have to be for a situation to be called a drought? Drought indicators provide an objective way to define the severity of drought. Accurate, consistent information on drought severity will help policy makers determine the appropriate response to the existing conditions.

A combination of the following four indicators is proposed for the ADRMP. Combining indicators will provide a more accurate assessment of drought severity. These four indicators, developed in various parts of the world, are currently being upgraded and fine-tuned to suit Alberta's climatic conditions and information needs.

1. Precipitation Departure Approach

This approach uses the relationship between actual precipitation and normal precipitation to assess the onset of drought. The intensity, duration and extent of drought are determined by using an index based on the degree of precipitation departure below normal and the period of time that the condition has existed.

2. Enhanced Palmer Drought Index

The Enhanced Palmer Drought Index (EPDI) is based on a commonly used drought indicator that has been enhanced with the addition of soil moisture budget modeling. The EPDI is suited to Alberta conditions because it is designed for areas that rely on snowmelt runoff as the primary source of surface water. The EPDI accounts for snowpack, mountain precipitation, stream flow, and soil moisture conditions.

3. Standardized Precipitation Index

The Standardized Precipitation Index (SPI) is based on the probability of precipitation determined by the long-term precipitation record. The SPI can help identify precipitation deficiencies relating to soil moisture, stream flow and groundwater. It is very good at detecting encroaching drought conditions and can examine drought conditions over multi-year periods. It also provides an easy way to identify the beginning and end of drought conditions and to describe drought severity.

4. Precipitation Deciles

This approach arranges monthly precipitation data into tenths of the distribution, or 'deciles', in comparison to the long-term precipitation record. Dry periods are classified as follows:

Decile:	Rating
1-2 (lowest 20%)	much below normal
3-4 (next lowest 20%)	below normal
5-6 (the middle 20%)	near normal
7-8 (next highest 20%)	above normal
9-10 (highest 20%)	much above normal.